

CLAIMS

1. Apparatus for introducing a substance into an object comprising: means for introducing the substance into the object; and means for causing permeability of the wall of the object so as to permit said substance to enter said object; the means for causing a permeability includes at least one electrode, dimensioned and arranged to permeate in the wall of the object upon application of a voltage pulse, characterised in that application of a voltage pulse is automatic when the object is in a desired position to be permeated.
- 10 2. Apparatus according to claim 1 wherein a channel is provided through which an object passes or flows to a position where it is permeated, the channel is of the order of 50 µm, more preferably the channel is less than 30 µm and most preferably the channel less than 4 times the diameter of the object.
- 15 3. Apparatus according to claim 1 or 2 having a pump for urging objects into a location at which a voltage pulse is applied.
4. Apparatus according to any preceding claim wherein means is provided to restrain or locate an object in a desired position.
- 20 5. Apparatus according to any preceding claim having a proximity detector arranged to trigger a voltage pulse when an object is correctly located.

6. Apparatus according to any preceding claim formed on a semiconductor substrate.
- 5 7. Apparatus according to claim 6 wherein the semiconductor substrate includes silicon.
8. Apparatus according to any preceding claim wherein the means for introducing the substance into the object includes a syringe.
- 10 9. Apparatus according to any preceding claim including means for determining the state or condition of the object following introduction of the substance.
- 15 10. Apparatus according to claim 9, dependent upon claim 7, wherein the means for determining the state or condition of an object includes an optical sensor and an infra-red source.
- 20 11. Apparatus according to any preceding claim including sorting means arranged to direct transfected objects to a first repository and non-transfected objects to a second repository.
12. A plurality of apparatus, according to claim 1 arranged in an array.

13. A method of introducing a substance into an object comprising the steps of causing the wall of the object to become permeable so as to permit the substance to enter said object, and urging the substance and object towards one another so that the substance enters the object,
- 5 characterised in that the object is made permeable by subjecting it to a voltage pulse, the voltage pulse being applied automatically when the object is in a desired position to be permeated.